

Notice of Allowability

Application No.

10/574,273

Examiner

MLouisa Lao, Ph.D.

Applicant(s)

FUJITA ET AL.

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1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to an application mailed 3/31/06.
2. ☒ The allowed claim(s) is/are 1 and 2.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying Indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 3/31/06
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

THOMAS K. PAGE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance:

The instant claims are drawn to a process for producing TA (terephthalic acid), which comprises, *inter alia*, a mother liquor displacement that includes the steps of (a) acetic acid solvent slurry introduction into a column with a central shaft having a plurality of stirring blades, where said slurry is the resultant product of a liquid-phase oxidation of p-alkylbenzene in an acetic acid solvent with water as a dispersing medium and the eventual catalytic hydrogenation of the slurry in water; (b) sedimentation of the CTA (crude terephthalic acid) in said column with said stirrer, where said stirrer comprises said stirring shaft and said plurality of stirring blades fitted to said stirring shaft along its vertical direction that results to circular flows in the high-concentration zone; (c) upward flow of water in the column allowing a counter-current contact with the CTA crystals; (d) concomitant discharge of the TA crystals from the bottom of the column and the retrieval of acetic acid solvent at the top of column above the slurry feed port.

2. The prior art, illustratively by Fumiya et al. (JP09-286759, JP'759 *in IDS*) or Ryoichi et al. (JP01-160942, JP'942 *in IDS*) in both the abstract and constitution teaches a cost-reduced process flow for producing TA by subjecting an acetic acid solvent slurry of TA obtained by a liquid phase oxidation of p-alkylbenzene to a mother liquor substitution and performing a catalytic hydrogenation. The steps in the process of JP'759 recite the (a) the acetic acid slurry introduction into an upper part of a mother liquor substituting tower and a sedimentary layer (b) of TA crystal is formed by sedimentation in the lower part of the tower, which allows said sedimentary layer to be taken out from the bottom; and further recites an ascending flow of water with the provision of a stirrer in the column. While, similarly JP'942 in both the abstract and

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constitution similarly teaches the production of TA with the recovery of aliphatic carboxylic acid (like acetic acid) using a column that allows the ascending flow of water countercurrent to the sedimentation of TA crystals, and the latter's recovery from the bottom of the column concomitant to the retrieval of the acetic acid at the top of the column.

3. However, the prior art as neither exemplified by JP'759 nor JP'942 discloses a washing tank that allows the formation of a *high-concentration zone* with an *ascending* flow of washing liquid *counter-current* to the sedimentation of the solid particles and thereby discharging washed solid particles and separating the washed solid particles from the washing liquid; with the provisions that the solid particles in said high-concentration zone is *15 to 50% by volume* and that said tank has a *central shaft with stirrer component thereto*. Said stirrer comprises a *stirring shaft and a plurality of stirring blades* fitted to the stirring shaft along its *vertical direction* that results to circular flow in the high-concentration zone.

4. The prior art as exemplified by the cited references neither suggest nor disclose the instant claims, as recited.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Correspondence

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MLouisa Lao, Ph.D. whose telephone number is 571-272-9930. The examiner can normally be reached on Mondays to Fridays from 8:30am to 5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman Page, can be reached on 571-272-0602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the

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status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ml 4/11/07
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